

AMENDMENTS TO THE CLAIMS

1-18 (canceled)

19 (currently amended) A SAW filter comprising:

a piezoelectric substrate;~~and at least two~~

a first inter-digital transducertransducers having a first comb-shaped electrode with electrode fingers, disposed along a in proximity to each other on the same surface acoustic wave propagation path on saidthe piezoelectric substrate, said first inter-digital transducer having a resonance frequency and being connected serially in a signal path;

a second inter-digital transducer having a second comb-shaped electrode with electrode fingers, disposed in proximity to said first inter-digital transducer and along the surface acoustic wave propagation path, said second inter-digital transducer being connected between the signal path and a ground, having a resonance frequency different from said resonance frequency of said first inter-digital transducer;

a first reflector electrode disposed on an outermost side of said first inter-digital transducer;

a second reflector electrode disposed on an outermost side of said second inter-digital transducer; and

a strip line electrode disposed between said first inter-digital transducer and said second inter-digital transducer so that said electrode fingers of said first inter-digital transducer, said strip line electrode, and said electrode fingers of said second inter-digital transducer are arranged almost continuously;

wherein at least one of the inter-digital transducers is a first inter-digital transducer connected serially to a signal path, and at least one is a second inter-digital transducer connected between the signal path and a ground;

wherein the first inter-digital transducer and the second inter-digital transducer are different in resonance frequency, and the first inter-digital transducer and the second inter-digital transducer are formed by such a configuration that electrode fingers of comb-shaped electrodes configuring inter-digital transducers are arranged almost continuously;

wherein ~~an electrode finger of said electrode fingers of said~~the first inter-digital transducer; ~~that is~~which are the closest to ~~said~~the second inter-digital transducer; and ~~an electrode finger of said electrode fingers of said~~in the second inter-digital transducer; ~~that is~~which are the closest to ~~said~~the first inter-digital transducer; ~~determine~~configure peaks and troughs of surface acoustic waves along said surface acoustic surface wave propagation path, and

wherein ~~said first comb-shaped electrode~~electrodes and ~~said second comb-shaped electrode~~ are connected ~~in common on the side having the electrode fingers of the comb-shaped electrodes which configure the first inter-digital transducer and the second inter-digital transducer~~, and

wherein ~~a polarity of said~~the first inter-digital transducer and ~~a polarity of said~~the second inter-digital transducer fall in reversed phases from each other relative to surface acoustic waves along said surface acoustic wave propagation path, and

wherein a pitch of said electrode fingers of said strip line electrode is between a pitch of said electrode fingers of said first inter-digital transducer and a pitch of said electrode fingers of said second inter-digital transducer.

20 (currently amended) The SAW filter of Claim 19,

wherein ~~said resonance frequency~~frequency of ~~said~~the first inter-digital transducer and ~~said resonance frequency of said~~the second inter-digital transducer are set so as to obtain~~up to frequency necessary for obtaining~~ a preset filter characteristic.

21 (currently amended) The SAW filter of Claim 20,

wherein ~~said resonance frequency of said~~the first inter-digital transducer is nearly matched with ~~an anti-resonance frequency of said~~the second inter-digital transducer.

22-24 (canceled)

25 (currently amended) The SAW filter of Claim 19,

wherein at least one of said first~~the~~ inter-digital transducer and said second inter-digital transducer includes one or more~~transducers~~, which configure the SAW filter, are of a configuration including dummy electrodes.

26 (currently amended) The SAW filter of Claim 19, further comprising~~wherein~~ a third inter-digital transducer, which is connected between the~~a~~ signal path and a ground, is arranged in proximity to said first inter-digital transducer and on a side of said first inter-digital transducer~~an opposite side to said~~such a side that the second inter-digital transducer is arranged in proximity to the first inter-digital transducer.

27 (currently amended) The SAW filter of Claim 26, wherein a resonance frequency of said~~the~~ third inter-digital transducer is different from said resonance frequency of said~~the~~ first inter-digital transducer.

28 (currently amended) The SAW filter of Claim 19, further comprising~~wherein~~ a fourth inter-digital transducer, which is connected serially to the~~a~~ signal path, is arranged in proximity to said second inter-digital transducer and on a side of said second inter-digital transducer~~an opposite side to said~~such a side that the first inter-digital transducer is arranged in proximity to the second inter-digital transducer.

29 (currently amended) The SAW filter of Claim 28, wherein a resonance frequency of said~~the~~ fourth inter-digital transducer is different from said resonance frequency of said~~the~~ second inter-digital transducer.

30 (currently amended) A SAW filter having SAW elements connected in multiple stages and using said~~configured in such a manner that~~ the SAW filter of Claim 19 is used as at least one SAW element and the elements are connected in multiple stages.

31 (currently amended) A SAW filter comprising:
a piezoelectric substrate;~~and at least two~~

a first inter-digital transducertransducers having a first comb-shaped electrode with electrode fingers, disposed along in proximity to each other on the same surface acoustic wave propagation path on saidthe piezoelectric substrate, said first inter-digital transducer having a resonant frequency and being connected serially in a signal path;

a second inter-digital transducer having a second comb-shaped electrode with electrode fingers, disposed in proximity to said first inter-digital transducer and along the surface acoustic wave propagation path, said second inter-digital transducer being connected between the signal path and a ground, having a resonant frequency different from said first inter-digital transducer;

a first reflector electrode disposed on an outermost side of said first inter-digital transducer;

a second reflector electrode disposed on an outermost side of said second inter-digital transducer; and

a strip line electrode disposed between said first inter-digital transducer and said second inter-digital transducer so that said electrode fingers of said first inter-digital transducer, said strip line electrode, and said electrode fingers of said second inter-digital transducer are arranged almost continuously;

wherein at least one of the inter digital transducers is a first inter digital transducer connected serially to a signal path, and at least one is a second inter digital transducer connected between the signal path and a ground, and the first inter digital transducer and the second inter digital transducer are different in resonance frequency, and the first inter digital transducer and the second inter digital transducer are formed by such a configuration that electrode fingers of comb-shaped electrodes configuring inter-digital transducers are arranged almost continuously, and

wherein a pitch of plural electrode fingers, which are arranged in a boundary area of saidthe first inter-digital transducer is different from a pitch of electrode fingers in a center area of said first inter-digital transducer, and

wherein a pitch of electrode fingers in a boundary area of saidthe second inter-digital transducer, is differentdifferentiated from a pitch of electrode fingers which are arranged in arespective center areaareas of said second inter-digital transducer, and

wherein a pitch of said electrode fingers of said strip line electrode is between a pitch of said electrode fingers of said first inter-digital transducer and a pitch of said electrode fingers of said second inter-digital transducer.

32 (currently amended) The SAW filter of Claim 31,

wherein weighting is applied to at least one of said first~~the~~ inter-digital transducer and said second inter-digital transducer~~transducers which configure the SAW filter.~~

33 (currently amended) The SAW filter of Claim 32,

wherein said weighting is applied using an apodized weighting method~~is applied to at least one of the inter-digital transducers which configure the SAW filter.~~

34 (currently amended) The SAW filter of Claim 32,

wherein a withdrawal weighting method is applied to at least one of said first~~the~~ inter-digital transducer and said second inter-digital transducer~~transducers which configure the SAW filter.~~

35 (currently amended) The SAW filter of Claim 31,

wherein at least one of said first~~the~~ inter-digital transducer and said second inter-digital transducer includes one or more ~~transducers, which configure the SAW filter, are of a configuration including~~ dummy electrodes.

36 (currently amended) The SAW filter of Claim 31, further comprising~~wherein~~

a third inter-digital transducer, ~~which is connected between~~ the a signal path and a ground, is arranged in proximity to said first inter-digital transducer and on a side of said first inter-digital transducer an opposite said side to such a side that the second inter-digital transducer is arranged in proximity to the first inter-digital transducer.

37 (currently amended) The SAW filter of Claim 36,

wherein a resonance frequency of said~~the~~ third inter-digital transducer is different from said resonance frequency of said~~the~~ first inter-digital transducer.

38 (currently amended) The SAW filter of Claim 31, ~~further comprising wherein~~

a fourth inter-digital transducer, ~~which is connected serially to the~~ a signal path, is arranged in proximity to said second inter-digital transducer and on a side of said second inter-digital transducer ~~can opposite said side to such a side that the first inter-digital transducer is arranged in proximity to the second inter-digital transducer.~~

39 (currently amended) The SAW filter of Claim 38,

wherein a resonance frequency of said the fourth inter-digital transducer is different from said resonance frequency of said the second inter-digital transducer.

40 (currently amended) A SAW filter having SAW elements connected in multiple stages and using said ~~configured in such a manner that the~~ SAW filter of Claim 31 is used as at least one SAW element and the elements are connected in multiple stages.